7-81

DuBois & King inc.

Route 66
Randolph, Vermont 05060
(802) 728-3376

ENGINEERING & ENVIRONMENTAL SERVICES

10136
July 20, 1981

Mr. William LaPierre
Environmental & Safety Officer
Howe-Richardson Scale Company
Strongs Avenue
Rutland, Vermont 05701

SUBJECT: Analytical Results of June 1981 Sampling

Dear Bill:

DuBois & King, Inc. is pleased to submit the enclosed report. Included in the report are the analytical results of all the water quality sampling done in June of this year, the chrome and lead analysis of coolant oils, and the EP Toxicity results of the phosphating sludge.

We commend you on your responsible approach to waste management and environmental quality. We are also pleased to be of continued service to Howe-Richardson. Please feel free to call me or Shawn Donovan with questions on this report or any other subject of concern.

Very truly yours,

DuBois & King, Inc.

John F. Amadon
Lab Director

JFA/pal
Enclosure

INTRODUCTION

This report is made up of four parts: 1) groundwater analysis for residual #6 fuel oil sampled from monitoring wells located around the spill area; 2) general groundwater analysis for evidence of any environmental damage due to plant operation; 3) chrome and lead analysis of used coolant oils; 4) EP toxicity testing of phosphating sludge.

Part I - Residual #6 Fuel Oil in Groundwater

Following the unfortunate rupture of the underground #6 fuel oil storage tank last spring remedial measures were taken to clean up and seal off the area to prevent further soil and water contamination. Groundwater monitoring wells were installed for sampling and analysis to ascertain whether or not the corrective measures are effective. These wells were bailed and sampled in early June by Howe-Richardson staff. Samples were stored in glass jars with aluminum foil lined caps. Samples were kept cold prior to analysis by Eastern Analytical, Inc.

The results are presented on the following page. A sample of #6 fuel oil was supplied by Howe-Richardson for use as a 'fingerprint' for the gas chromotograph coupled with a flame ionization detector. No fuel oil was detected in the monitoring well samples or the original recovery well sample. The detection limit was 0.1 mg/L.

These results indicate that the remedial measures taken are effective in preventing pollution. The oil has been strongly adsorbed by the soil and/or been biodegraded by the natural soil microbes.

EASTERN ANALYTICAL, INC.
RFD 2, CLINTON STREET, CONCORD, NH 03301 (603) 228-0525

LABORATORY TEST REPORT FOR:

DUBOIS AND KING
ROUTE 66
RANDOLPH VT 05060

DATE REPORTED: 6/16/1981
DATE RECEIVED: 6/4/1981
LAB ID NUMBER: 1602

SAMPLE IDENTIFICATION:
7 WELL WATER SAMPLES FOR #6 FUEL OIL (HOWE RICHARDSON)

METHOD: SAMPLES WERE EXTRACTED WITH METHYLENE CHLORIDE. EXTRACTS WERE ANALYSED BY GC/FID. THE LIMIT OF DETECTION WAS 0.1 MILLIGRAM PER LITER.

SAMPLE ID	CONCENTRATION
WELL #5	NONE DETECTED
WELL #9	NONE DETECTED
WELL #10	NONE DETECTED
WELL #11	NONE DETECTED
WELL #12	NONE DETECTED
WELL #13	NONE DETECTED
RECOVERY WELL	NONE DETECTED

< = LESS THAN
ALL TESTING IS PERFORMED ACCORDING TO EPA APPROVED PROCEDURES

AUTHORIZED SIGNATURE: William Bouchard

Part II - General Groundwater Analysis

On June 25, 1981 Ron MacBruce, DuBois & King's Assistant Lab Director, obtained water samples from the following locations except TW #1 and TW #3 which were dry.

TEST WELL #1 - Located at south end of property near south gate exit. Installed March 31, 1980.

TEST WELL #2 - Located at south side of Moon Brook near water pump house. Installed April 1, 1980.

TEST WELL #3 - Located at north side of Moon Brook adjacent gate. Installed March 31, 1980.

TEST WELL #4 - Located on north side of property near gate by railroad tracks. Installed April 1, 1980.

TEST WELL #5 - Located behind Department 24, Light Fabricating between building and railroad tracks. Installed April 2, 1980.

TEST WELL #6, #7 #8 - Located in a line southwest of Well #4. Installed June 3, 1980.

MOON BROOK

(a) Upstream. Samples collected from cross section of stream near railroad overpass northeast of Howe-Richardson property.

(b) Downstream. Samples collected from cross section of stream near railroad yard overpass southwest of Howe-Richardson property.

The wells had been flushed, by the Howe-Richardson Staff on the 24th of June to purge contaminants. Sampling and preservation techniques followed the State of Vermont and US EPA Techniques. A peristaltic pump was used to get water from the monitoring wells. The pH and specific conductance were measured on site. The samples were filtered through a .45 micron filter. Sample aliquots for metals analysis were preserved with nitric acid. Samples for COD were preserved with sulfuric acid. Samples for oil and grease were preserved with sulfuric in glass bottles and kept cool. Other than the volatile organics, the samples for the remaining analytical parameters were kept on ice in the field, and refrigerated at 4°C in the lab. Samples for

volatile organics were sampled separately by bailing. These were stored in borosilicate glass with teflon lined caps and no head space.

On June 30, 1981, the Howe-Richardson staff obtained bulk samples from Test Wells 1 and 3. These were shipped, on ice, to the DuBois and King laboratory. Samples were still cold on receipt in the lab and immediately prepared as described above.

The physical and inorganic properties are tabulated on the following pages. The results are basically comparable to the 1980 data. However, COD in 1981 is significantly lower, and some chlorides are significantly higher, especially in Test Well #4.

The heavy metals analyses were carried out by Atomic Absorption Spectroscopy utilizing flame, furnace and hydride techniques. Iron, zinc, and lead were generally lower than the 1980 samplings. Barium and mercury are somewhat higher than the 1980 sampling's. However, the overall low leads of total metals provides a sound data base that no major metals contamination is being generated by Howe Richardson. The final determinant is the metals content of Moon Brook in comparing levels upstream and downstream of the plant.

The samples taken for the volatile organics analyses were assayed by gas chromatography, for the 7 species isolated from the monitoring wells during the 1980 samplings. These species and the GC detection limits are: Trichloroethane (2 mg/L), Dichloroethane (5 mg/L), Dichloroethylene (5 mg/L), Trichloroethylene (2 mg/L), tetrachloroethylene (2 mg/L), Toluene (10 mg/L), and Hexane (10 mg/L). The only organic species detetected was trichloroethane in 3 monitoring wells.

Concentration (~~mg/L~~ ug/L)

Organic	TW4	TW6	TW7
Trichloroethane	120	360	78

In comparison with the 1980 data, the trichloroethane is higher in the 1981 sampling. However, no other organics were detected in any other samples, including Moon Brook.

In conclusion, groundwater quality within the confines of the Howe-Richardson property is not being adversely affected by plant operations nor is the water quality of Moon Brook adversely affected.

PHYSICAL AND INORGANIC CONSTITUENTS
(All results in mg/L except where noted)

Parameter	TW#1*	TW#2	TW#3*	TW#4	TW#5	TW#6	TW#7	TW#8	Moon Brook Upstream	Moon Brook Downstream
pH (su)	7.1	7.1	7.0	7.7	7.1	7.5	7.8	7.8	7.9	7.9
Chemical Oxygen Demand	<2	4.1	2.0	18.4	10.2	10.2	4.1	8.2	2.0	4.1
Color (Pt Co)	x	2	x	2	0	10	5	15	20	25
Chlorides	44.9	1.0	5.1	159	21.9	40	35	1.0	44	45
Specific Conductance (umhos/cm)	830	760	450	1220	980	780	640	1270	400	370
Oil & Grease		<0.4		2.7	14.1	16.4	<0.4	<0.4	24.7	<0.4
Temp °C		13		12.5	16	14	14	14	18	18
Depth To water (FT)		9.7		12.4	4.15	4.85	15.0	15.05		

* Samples from TW1 and 3 were obtained by the Howe-Richardson Staff 5 days after the DuBois & King Sampling.

HEAVY METALS
(Results in mg/L)

Parameter	TW#1	TW#2	TW#3	TW#4	TW#5	TW#6	TW#7	TW#8	Moon Brook Upstream	Moon Brook Downstream
Iron	0.29	1.80	0.42	0.27	0.09	2.70	0.07	0.09	0.31	0.35
Zinc	.071	.072	.135	.078	.065	.103	.056	.143	<.005	<.005
Arsenic	<.01	.01	.01	.01	.01	.01	.01	.01	<.01	<.01
Barium	0.63	.064	0.67	.054	.029	.030	.031	.050	.012	.015
Cadmium	.0005	.0007	.0005	.0007	.0005	.0004	.0004	.0005	.0002	.0002
Chromium	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02
Lead	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.002	<.02	<.002
Mercury	0.030	0.005	0.002	0.030	.003	.001	.002	.003	<.001	<.001
Selenium	<.001	<.001	.003	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Silver	<.01	<.01	<.01	<01	<.01	<.01	<.01	<.01	<.01	<.01
Vanadium	<.02	<.02	<.02	<.02	<02	<.02	0.04	0.03	<.02	<.02